

Received January 25, 1770.

XIII. *Journal of a Voyage, made by Order of the Royal Society, to Churchill River, on the North-west Coast of Hudson's Bay; of Thirteen Months Residence in that Country; and of the Voyage back to England; in the Years 1768 and 1769: By William Wales.*

Read March 8 and 15, 1770.

* * * It must be observed, that the Astronomical, and not the Nautical Day, is every where to be understood in the following Journal.

1768.

○ May 29th. HAVING settled all my affairs in London; about 22 hours I set off for Greenwich, where I received my instructions from the Rev. Mr. Maskelyne, his Majesty's Royal Astronomer.

» the 30th. About 2 hours went on board a Gravesend boat; got to that place about 7, and went directly on board the ship. A. M. delivered my instructions to Mr. Dymond, for him to copy, according to Mr. Maskelyne's directions.

at the

the 31st. About 2 hours weighed, and the wind being contrary, we tided it all the way from that place to Yarmouth road; where we arrived, and came to an anchor, about 20 h. on 5, June the 4th.

We lay in Yarmouth Road until the 7th, when we unmoored, and came to an anchor in Cairstown harbour on 8, the 12th, about 14 hours; having had strong gales, and thick weather, with drizzling rain almost all the time.

We lay in this place, and in the road, till 4, the 23d, taking in ballast and live stock; having for the most part nasty thick, and cold fogs: About 16 hours the commodore made the signal to un-moor, and about 18 h. we got under way, and stood through Hoy-sound. At 20 h. Hoy-head bore S. E. by compass, dist. about 4 miles. At noon I observed the sun's meridian altitude to be $54^{\circ} 10' \frac{1}{4}$, whence the true lat. of the ship was $59^{\circ} 3' \frac{3}{4}$; the course by compass since 20 h. was W. N. W. at the rate of $4 \frac{6}{7}$ miles per hour. Hence the lat. of Hoy-head is $59^{\circ} 2' N.$ and if we account its long. west of Greenwich $3^{\circ} 20'$. the long. of the ship at this time was $4^{\circ} 5' W.$

the 24th. From the run and course of the ship, and different bearings therefrom, I deduced the latitudes of the following places, and their longitudes from the head of Hoy as annexed.

Skerry	lat. $59^{\circ} 12' \frac{1}{4}$ N.	long. $0^{\circ} 56' \frac{1}{4}$ W.
Stack of Skerry	59 7 $\frac{3}{4}$ N.	1 3 W.
East Barra	59 7 $\frac{1}{2}$ N.	2 24 $\frac{1}{2}$ W.
West Barra	59 5 N.	2 40 W.

5 June

8 June 29th. Being by account in long. $19^{\circ} 40'$ W. and by a tolerable observation this day at noon in lat. $56^{\circ} 57' 20''$ N. I took the following observations to ascertain the time by Mr. Dymond's watch.

Time per watch.	Alt. \odot 's	L. L.
4 ^h 58' 14'	27° 55 $\frac{1}{4}$	
5 2 55	2 $\frac{1}{4}$	
3 41	1 5 $\frac{1}{4}$	
4 27	9	
5 16	0 $\frac{3}{4}$	

The quadrant was truly adjusted, and the height of the eye above the water about 12 feet. Hence I infer that the watch was too fast for apparent time 3' 53".

At 13^h 5' the eclipse of the moon was considerably begun; I estimated it about 3 digits.

At 14^h 11' I judged the beginning of total darkness happened; but clouds rendered it a little uncertain

Watch too fast 14 11 0

Beginning of total darkness observed 3 53

Time at Greenwich by strict calculation 14 7 7

 15 13 50

Long. West = 16 40 $\frac{3}{4}$ = 1 6 43

This must be considerably too little. Indeed I am of opinion my reckoning is so, as we have, these two last days, had a great swell from the eastward, which I have not skill enough in navigation to allow for.

4 the 30th. By comparing Mr. Dymond's watch with Captain Richards's, which he says goes very exactly, I find that Mr. Dymond's has gained at the rate of 9' $\frac{1}{2}$ per day; and therefore 3' 38" must be taken from

from the time of the observation, more than I yesterday allowed, which will make the long. of the ship at 5 h. yesterday $17^{\circ} 35' \frac{1}{4}$; but this is undoubtedly too small, a circumstance which I cannot account for.

♂ July 5th. Being by account in long. $45^{\circ} \frac{1}{4}$ W. and by observation in Lat. $57^{\circ} 43'$ N. I made the following observations for determining the long. of the ship. Mr. Dymond observed the altitudes of the sun, and Capt. Richards those of the moon.

Dift. ♀ & ☽ nearest limb.	Alt. of ☽ L. L.	Alt. of ♀ L. L.
99° 30'	40° 41'	22° 57'
29	41 11	22 37
$25\frac{3}{4}$	41 52	21 55
$23\frac{3}{4}$	42 4	21 37
23	42 20	22 24

There must be subtracted from the distances 48' for the error of the quadrant: the other quadrants were right; but 3' must be subtracted for the dip of the horizon.

The long. of the ship according to these observations will be found $47^{\circ} 47' \frac{3}{4}$ W.

I did not make use of the telescope when I made these observations, as its field is too small to use when the ship has much motion, which was the case at this time.

We were certain that we were now well a-breast of cape Farewell; having the two preceding days passed several pieces of drift-wood. This is also strongly corroborated by the preceding observations.

♀ the 6th. About 4 h. we passed another large piece of drift-wood, which was the last we saw.

☽ the 10th. About 22 h. the lat. of the ship being $57^{\circ} 58'$ N. and long. (reckoned from the observation of the 5th) $51^{\circ} 20'$ W. I made the following

ing observations for determining the variation of the needle.

Alt. ⊖ L.L.	Arim.
49° 51'	81 37
50 36	83 0

3' 18" must be subtracted from the ⊖'s alt. for the dip of the horizon.

From the first observation the variation comes out $31^{\circ} 33'$, and from the second $30^{\circ} 2'$; and the mean of both is $30^{\circ} 47 \frac{1}{2}$ westerly.

On the 16th. The former part of these 24 hours we ran through several very strong replings of the tide, which made us suspect that we might be nearer the entrance of the Straights than our accounts shewed us to be; and therefore about 11 h. the whole fleet brought to, as the fog was exceeding thick. We now compared all our reckonings, and also with the commodore and brig's people, and found them all to agree very near: mine, which was about long. 61° W. being the headmost.

About 16 h. we saw the first isle of ice; but it was at too great a distance for me to give any farther account of it.

On July the 18th. This day, and yesterday, we have run through several very strong riplings of tide; and have passed by many islands of ice; but their distance, and the thicknes of the fog, rendered it impossible for me to give any account of them.

On the 19th. Passed within a cable's length of a very large island of ice, or rather frozen snow, for it appeared to me to be nothing else. It was about as high out of the water as our main-top, and was adorned both on its top and sides with spires; and indented

indented in the most romantic manner that can be imagined.

4 the 21st. At noon the fog was so thick that we could scarce see a man on the forecastle, and hearing two guns at some distance (the signal for bringing to) we hauled our courses. About half an hour afterwards, we fired a gun; but having no answer, we tacked, and set our courses, fore, and mizen stays; apprehending that the signal at noon was to tack, and that we missed one gun.

All the afternoon we fired guns at short intervals, but could hear no answer. At 7 there came on a strong gale, which with the ripples we were continually running through, made a very rough sea, the waves beating continually over the quarter deck: and if we add to these, the thickness of the fog, and the great number of ice islands we were amongst, our situation must be allowed to have been truly dangerous: we weathered one island in the morning, but by about three or four times the ship's length, and though so very near, we could not see its top for the fog.

5 July the 23d. About $\frac{1}{2}$ past 2, we made the island of Resolution, which forms the north shore, at the entrance of Hudson's Straits, bearing from us N. W. b. W. It lies, by my account, in lat. $60^{\circ} 29' \frac{1}{2}$ N. and long. $65^{\circ} 9'$ W.

○ the 24th. This afternoon, being in lat. $61^{\circ} 55 \frac{1}{2}$ N. and long. (by account) $67^{\circ} 46'$, I made the following observations for determining the variation of the needle.

Alt.	○L.	L.	Azimuth.		Alt.	○L.	L.	Azimuth.		Dip.
29	50 $\frac{1}{2}$	67	30		25	10	55	20		
29	13	64	20	{ variat.	24	34	54	40	{ variat.	
28	58	63	35	$38^{\circ} 44'$	24	8	52	30	$40^{\circ} 52'$	
					23	50	51	45		3' 18''.

Hence the mean of both gives the variation $39^{\circ} 48'$ W.

About 10 there came along side of us a boat, with several Eskimaux women, and two or three boys; but no men. They traded with the people some of their cloaths, and a few toys of their own making; such as models of their bows, harpoons, &c. but I saw nothing else that they had to trade; nor had they any weapons, either of offence or defence, along with them. The boat is so well described and delineated in Crantz's history of Greenland, that it is entirely needless to attempt it here.

This morning we saw the other ships under the land, bearing from us N. N. E. and whom we joined about noon.

The north shore of these straits seems to be a chain of broken islands, or rather, large, bare rocks; one rising, as it were, in perspective above another. But I cannot help observing, that from the accounts of authors, I expected to have found them entirely covered with ice and snow; whereas I found them entirely bare, except in some very deep vallies. I apprehend, however, that this had not long been the case, as the water every where kept continually tumbling down the rocks in prodigious torrents.

» July the 25th. This afternoon I told 32 islands of ice as I stood on the quarter-deck. This number is

is about double of what I have ever seen before, at one time.

The manner in which these islands are formed has been matter of much dispute ; and various, indeed, have been the conjectures of seemingly very learned authors concerning them. But I cannot, however, help thinking, that the cause and manner of their formation might very easily be made out from a few principles ; and these facts, obvious to every one who visits these Straits. But as this would lead me to controvert the opinions of several Gentlemen, who in all probability, are much more conversant in these things than I can pretend to be, I shall only here put down those circumstances ; and leave it to every person to form his own judgment of the matter.

1st. The northern shore of these Straits, as it is usually called, is one continued chain of small islands ; which form almost an infinite number of little bays, and inlets. 2d. The rocks which form the shores, are very high ; and in most places almost perpendicular. 3d. The water is very deep close to the shore, in most places 60 or 70, and in several 120 fathoms, and upwards. 4th. The tides rise here sometimes upwards of 6 fathoms, and set through these Straits with great velocity, and almost in all directions. 5th. There fall, during the winter season, vast quantities of snow, and at this time the frosts are also very intense. 6th. The wind blows from the northern quarter, at least, three quarters of the year. 7th. During the months of June and July, the vast quantities of snow, which lie exposed to the sun, melt very fast, and the water running into those bays and inlets, must cause a strong current to set off

from the shore. 8th. There are no ice mountains any where on those shores. 9th. These islands come not from Greenland; but are continually seen to set that way, until they get out of these Straits; after which their course becomes more southerly. Lastly, they are not ice, but snow frozen. These circumstances, which are attestable by too great a cloud of witnesses to be disputed, will, I apprehend, form sufficient data, whereby to give a very satisfactory answer to the problem in question.

This day, as I was observing the sun's meridional altitude, there came along side of us three Eskimaux in their canoes, or, as they term them, Kiacks, but who had very little to trade, except toys. None of these had along with them any weapon that I saw, except a kind of dart, evidently constructed for sea purposes, as it had a buoy fixed to it, made of a large bladder blown up.

The men have on their legs a pair of boots, made of seal skin, and soled with that of a sea horse; these come barely up to their knees; and above these they have breeches made of seal, or deer skin, much in the form of our seamens short trousers. The remaining part of their cloathing is all in one piece, much in the form of an English shift; only it comes but just below the waist-band of their breeches, and has a hood to it, like that of a woman's cloak, which serves instead of a cap. Over these they have a kind of foul-weather jacket, made of the same leather with the legs of their boots, which they fasten very tightly about their necks and wrists; and when they are in their Kiacks (which also are extremely well described by Mr. Crantz) are likewise fastened

fastened in such a manner round the circular hole which admits the man's body, that not the least drop of water can get into it, either from rain or the spray of the sea.

The dress of the women differs not from that of the men, excepting that they have long tails to their waistcoats behind, which reach quite down to their heels; and their boots come up quite to their hips, which are there very wide, and made to stand off from their hips with a strong bow of whalebone, for the convenience of putting their children in. I saw one woman with a child in each boot top.

As to their persons, they seem to be low; but pretty broad built, and inclined to be fat: their hands remarkably small; their faces very broad and flat; very little mouths, and their lips not remarkably thick; their noses small, and inclined to what is generally termed bottled; their eyes are black as jet, and their eye-lids so encumbered with fat, that they seem as if they opened them with difficulty; their hair is black, long, and straight; and notwithstanding that they seem encumbered with a superfluity of flesh, they are remarkably brisk and active; more especially in the management of their Kiacks, which exceeds every thing of the kind that I have seen. All I can say with regard to their disposition is, that if they really deserve the character which authors have given of them, they are the most complete hypocrites that nature ever formed *.

* It may not be amiss to observe here, that I have had, whilst at Churchill, an exceeding good opportunity of learning the disposition of these people; as there are several of them come

3 July 26th. This evening I observed the moon's meridional altitude $2^{\circ} 35'$ alt. of the eye 12 feet.

A little before noon the following observations were made for determining the magnetical variation :

\odot 's Alt. Azimuth
L. Limb.

$37 \ 2\frac{1}{4}$ $75^{\circ} 25'$ from a mean of 3 observations
by the chief mate.

$39 \ 52\frac{1}{2}$ $89 \ 50'$ from a mean of 4 observations
by myself.

$41 \ 3$ $2 \ 42$ from a mean of 5 observations
by Mr. Dymond.

almost every year, by their own free will, to reside at the factory ; and can with truth aver, that never people less deserved the epithets of " treacherous, cruel, fawning, and suspicious ;" the contrary of which is remarkably true in every particular. They are open, generous, and unsuspecting ; addicted too much (it must be owned) to passion, and too apt to revenge what they think an injury, if an opportunity offers at that moment ; but are almost instantly cool, without requiring any acknowledgement on your part (which they account, shameful), and I verily believe, never remember the circumstance afterwards. Mr. Ellis observes, " That they are apt to pilfer from strangers, easily encouraged to a degree of boldness ; but as easily frightened." Now I cannot help thinking that he would have conveyed a much better idea of them if he had expressed himself thus : They are bold and enterprizing even to enthusiasm, whilst there is a probability of success crowning their endeavours ; but wise enough to desist, when inevitable destruction stares them in the face.

Perhaps few people have a greater genius for arts, which shews itself in every one of their implements, but particularly in their boats, harpoons, darts, bows and snow-eyes, which last are most excellently contrived for preserving the eyes from the effect of the snow in the spring. But a volume might be written on these subjects, and perhaps not unentertaining.

The

The height of the eye about 12 feet. Lat. $62^{\circ} 12' N.$. And by calculating these three sets separately, and taking a mean of the three results, the variation will come out = $44^{\circ} \frac{3}{4}$.

It may perhaps be worthy of remark, that the island of God's Mercies, or, as some call it, the Upper Savage Island, lies in the mouth of an inlet, running northward; out of which come the greater part of those islands of ice, which are so much taken notice of in these parts. I have been told by gentlemen in the Hudson's Bay service, that some of their ships have formerly been driven by the ice into this inlet, where they found a fine open sea, without any bounds that they could see to the northward. This inlet is called the North-Bay.

I beg leave likewise to mention what I apprehend to be a mistake in Crantz's history of Greenland, where he says that those pieces of ice which are of a vitriol colour are salt, and consist of salt water frozen to ice; but I can, from my own experience, assert, that when the salt water, which they catch by the sea washing over them, is wiped clean off, they are entirely fresh. I will not take upon me to say that they are not made from salt water; but if they are, it must have deposited all its salts before it was frozen to ice.

¶ July 27. This evening I told 58 islands of ice, all going directly across the Straits from the mouth of the above-mentioned inlet, at the rate of several miles per hour.

From this one circumstance, we have an irrefragable argument to prove the impossibility of Capt. Middleton's hypothesis, relating to the very slow pro-

gressive motion of these islands, and the long time which, he thinks, they take up in dissolving. For, admitting his hypothesis to be true, and that there were no other islands of ice but what came out of this bay; not only Hudson's Straits, but even all the adjacent sea would in a very few years be so entirely choaked up with them, that it would be impossible to force a ship amongst them, could a master of one be found so imprudent as to venture; which must be inevitable destruction. The truth is, their motion and dissolution are apparently so very quick, that I am of opinion it must be a pretty large island which is not dissolved in one summer. How Capt. Middleton could drop into such a palpable mistake, is very difficult to say: he most certainly had as great an opportunity of informing himself of the truth of what he wrote on this subject, as any person whatever; and in this case had not the least inducement, whatever he might be thought to have in others, to speak contrary to his knowledge.

2 July 29th. At 15 h. we hauled the wind to the southward, the ice being quite thick a-head of us. At 19 h. hauled the wind to the N. W. and stood through the ledge of ice, as, for aught that appeared to the contrary, it might reach quite to Cape Wal-singham, which now bore S. W. It consisted of large pieces close jambed together: in the place where we attempted to pass through, it was not quite so close. It is really very curious to see a ship working amongst ice. Every man on board has his place assigned him; and the captain takes his in the most convenient one for seeing when the ship approaches very near the piece of ice which is directly a-head of her, which

which he has no sooner announced, but the ship is moving in a quite contrary direction to what it was before, whereby it avoids striking the piece of ice, or at least, striking of it with that force which it would otherwise have done. In this manner they turned the ship several times in a minute; the wind blowing a strong gale all the time.

A little before noon, being in lat. $62^{\circ} 48'$ N. and Cape Walsingham bearing S. W. by S. I made the following observations for determining the magnetical variations.

Alt. ☽	L. L. ¹	Azimuth.	Variat. W.
33° 48'	63° 40'		
34 6	68 37	37° 19'	
34 39	68 30		
34 54	70 30		
35 6	72 10	39° 6'	
35 11	71 0		
35 18	72 30		
— 22	70 32	39° 18'	
— 30	74 30		

The alt. of the eye was 12 feet, and the mean of these three results gives $38^{\circ} 34'$ for the variation required. But it may be necessary to remark, that the very great motion which the ship had at the time, renders the observations dubious.

5 July 30th. This evening I staid upon deck till after midnight, in hopes to have observed the ☽'s distance from a star; but, after trying for near an hour, I was obliged to give it up, on account of the twilights, which are amazingly bright in these high latitudes. There is another great inconvenience which attends observations of this kind here, viz. a

red haziness round the horizon, to a considerable height, rendering the stars very dim; but at the same time large, something like the nucleus of a comet. I have been disappointed by one or other of these, two or three times before; but this is the more vexatious, as we are now amongst many islands, headlands, &c. whose longitudes are entirely unknown, and on which account an observation would have been singularly useful.

From this time to ♀, August 5th, no circumstance material happened; but on that day I got the following observations for determining the longitude of the ship.

Dist. ☽ & ☉'s nearest Limb.	Alt. ☉ L.L.	Alt. ☽'s Cent.	Adjust. Quad.	Lat. $60^{\circ} 46' \frac{1}{2}$ N.
73° 36'	33° 47'	48° 0'	2½ +	
34	34 9	47 50	2 +	
32½	22	47 23	3 +	
32	35	47 5	3 +	
32	48	46 57	2½ +	
32	35	2 46 55	5) 13 (= 2 36 +	These observations give the longit. of the ship W. 92°.
31	14	46 40		
30	21	46 35		
29½	32	46 23		
29	40	46 20		

*** N. B. The
height of the eye a-
bove the water was
12 feet.

6 August

5 August 6th. Mr. Dymond observed the following distances of the sun and moon, which I have taken the liberty to transcribe, and calculate by Mr. Dunthorne's method.

D à ☽	Alt. ☽ L.L.	Alt. ☽ Cent.
60 56 $\frac{1}{2}$	26 9	55 2
56	30	4
55	42	4
54	27 00	5
54	12	5
54	20	7
52 $\frac{1}{2}$	40	5

There are no adjustments to be allowed; the height of the eye above the water was twelve feet: and the longitude of the ship, hence deduced, is $94^{\circ} 2' \frac{3}{4}$; latit. = $59^{\circ} 28' N.$

The longit. of the ship at noon was, according to my observation of the 5th, $93^{\circ} 50'$ } West.
Mr. Dymond's of this day, $94^{\circ} 21'$ }

○ August 7th. About 5 saw the low land of Cape Churchill, bearing from the S. to S. W. b. S. but the haziness of the horizon made the land put on a different appearance every 4' or 5'. I cannot help taking notice of one circumstance, as it appears to me a very remarkable one. Though we saw the land extreamly plain from off the quarter deck, and, as it were, lifted up in the haze, in the same manner as the ice had always done; yet the man at the mast head declared he could see nothing of it. This appeared so extraordinary to me, that I went to the main-top-mast-head myself to be satisfied of the truth thereof; and though I could see it very plain both before I went up, and after I came down, yet could I see nothing like the appearance of land when I was there. I had often admired the singular ap-

pearance of the ice in these parts, which I have seen lifted up 2° or 3° at a distance of 8 or 10 miles, although when we have come to it, we have found it scarcely higher than the surface of the water.

At 21 h. we fired a gun, and thought we heard one in answer to it; which, if true, must have been from the factory.

» August 8th. We saw the flag-staff of the factory, with the colours on it, bearing S. W. by W. but lost it again in the haze a few minutes afterwards. At 3 we saw the factory-land, and the flag-staff very plain, S. W. b. W. At 4 made the appointed signal, which was properly answered; after which, we bore away directly for the mouth of the river, and at 5 anchored, there being little wind, and the ebb tide was running out very strong. At this time Cape Merry bore S. W. and Eskimaux Point N. W. b. W. from whence, and the run of the ship since noon, I infer that the latit. of the factory is $58^{\circ} 59'$ N. and by Mr. Dymond's observation in $95^{\circ} 33'$ W. or, according to mine, $95^{\circ} 2'$ W.

A little before noon we weighed, and worked up the river to the usual place where the ship lies, where, about two the 9th, she was safe moored.

¶ the 10th, we went on shore, for the first time. We were met on the beach by Captain Richards, who went with us up to the factory, and introduced us, in form, to the governor, Mr. Moses Norton, who, as well as Mr. Fowler, the person who succeeded him, behaved to us with great civility, and kindness. After breakfast, the surgeon of the factory was so kind as to walk with us several miles, to shew us the country.

The

The soil, as far as we went, consisted entirely of high bare rocks, or loose gravel : amongst the latter, there shoots up, in the lower places, many dwarf willows, and birch ; in the higher ones some small gooseberry bushes ; but these do not grow upright as in England, but creep along the gravel like the bramble brier. I saw besides these some strawberries, many cranberries, and a few bilberries ; but none of these were yet ripe, except a few of the last. I likewise saw some few plants creeping amongst the moss ; but none that I knew, except the dandelion and small yarrow.

I saw some wild ducks and curlews, but could handle none of them ; we shot a few birds, much about the size, colour, and make of a woodcock : these they call here stone-plover. I saw another bird, not much unlike a quail, which they call here the whale-bird, from its feeding on the offal of those fish after the oil is boiled out of it. Besides those, I saw many, and great variety, of the gull, or seamew kind ; and also of small birds, like our linnets, larks, &c. But the most extraordinary bird that I have yet met with is (I know not for what reasons) called a man-of-war, and feeds on the excrements of other birds ; its way of coming at its food is also a little extraordinary ; he pursues the bird which he pitches on for his supply, until fear makes it void what he wants, and so soon as this happens, he catches the morsel in his mouth ; after which he leaves that bird and pursues another.

I found here three very troublesome insects. The first is the moschetto, too common in all parts of America, and too well known, to need describing here.

here. The second is a very small fly, called (I suppose on account of its smallness) the sand-fly. These in a hot calm day are intolerably troublesome : there are continually millions of them about one's face and eyes, so that it is impossible either to speak, breathe, or look, without having one's mouth, nose, or eyes full of them. One comfortable circumstance is, that the least breath of wind disperses them in an instant. The third insect is much like the large flesh-fly in England ; but, at least three times as large : these, from what part ever they fix their teeth, are sure to carry a piece away with them, an instance of which I have frequently seen and experienced.

August 11th, 12th, 13th, 15th, 16th, 17th, and 18th, we got on shore the observatory and instruments ; but the people were all so busy unloading the ship, and repairing the quay, craft, &c. that we could not begin to put any part of the observatory up.

On the 16th, I went with Mr. Fowler about ten miles up the country, which, as far as we went, was nothing but banks of loose gravel, bare rocks, or marshes, which are over-flowed by the spring tides, and do not get dry before they return, and overflow them again. Our errand was, to see if we could not find some land likely to produce corn ; and in all that extent we did not find one acre, which, in my opinion, was likely to do it. In some of the marshes the grass is very long, and with much labour they cut and dry as much hay as keeps three horses, two cows, a bull, and two or three goats, the whole winter. I saw many acres of land covered with fir-trees, some of which might be perhaps about 20 feet high : these grow

chiefly on the borders of the marsh-lands, or, which is the same thing, round the skirts of the rocky parts. I saw no other wood, of any kind, that would bear the name of trees ; but, except where the rocks are entirely bare, or where the ground is covered with water every tide, it is entirely covered with low bush-wood, after we get a few miles from the factory. These shrubs consist of willows of many kinds, birch, juniper, gooseberry, and black currants. I saw several plants, very different from any which I have ever seen in England ; but am not botanist enough to class, or even give a tolerable description of them*.

August the 19th and 20th. We laid the foundation of the observatory in its proper place and position, which was on the S. E. bastion, the higher and lower observatories nearly N. N. E. and S. S. W. of each other respectively. This place and position, though inconvenient in some respects, were, in my opinion, the most eligible for our purpose. We also got up the sides thereof, and fixed up a stiff plank of dry English oak to screw the clock to ; this plank was about $5\frac{1}{2}$ feet out of the ground, 4 feet in it, 16 inches broad, and $4\frac{1}{2}$ thick, and supported with spurs to make it steady. There was likewise placed at the foot of it, in the most solid manner possible, a stone of about a quarter of a ton weight, with a flat surface, to set the bottom of the clock-case on ; so that the clock stood entirely independent of the observatory.

* I have brought some of them home with me in the best manner I could ; but imagine they are not worth notice, on account of my want of experience in drying them.

The 22d and 23d, the people were allowed to write to their friends in England, so I employed myself to the same purpose.

The 24th, 25th, 26th, and 27th. The carpenters were employed in making us bed-places, &c. having hitherto had no where to lie but on the floor.

The 29th, 30th, and 31st, were employed on the observatory; we got on the circular parts and roof of each. On the 31st the ship sailed for England.

September 1st, 2d, 3d, 5th, 6th, and 7th. We were employed in finishing the observatory. On the 8th we set up the two clocks. This morning the snow was about two inches deep on the plains. The 9th, put up the stove in the observatory, the two thermometers, and repaired such parts as had been broken in the carriage. In the 10th, we filled the barometer, and put it up; we also took out the quadrant, which we found much tarnished, especially the arc, and adjusted it ready for observation.

» Sept. 12th. I found that the roof of the observatory would not permit us to take zenith distances of any stars on the arch of excess of the quadrant, without moving it farther to the southward; and as I could not hit on any method of determining the error of the line of collimation, which to me appeared satisfactory, except by observations of stars near the zenith, I resolved to take up the floor of the observatory, and remove the piles on which the quadrant stood farther south; and which, with the assistance of the house carpenter, I effected on the 16th, so as answer our purpose completely.

From this time to August the 28th, 1769, I kept no journal, except of the weather; the original of which

which has been given in to the Royal Society ; and which is, in reality, the only thing we have to keep a journal of here in the winter season ; and therefore, what I have farther to offer is in short memorandums, which I made when the circumstance mentioned occurred to me ; but as they will scarcely appear intelligible, in that form, to any but myself, I shall endeavour to throw it into a sort of historical account of the seasons, and manner of living, in that part of the world.

We arrived at Churchill just in the height of what is called the small bird season, which consists of young geese, ducks, curlews, plover, &c. This begins about the latter end of July, and lasts till the beginning of September, when the greater part of these birds leave that part of the country. The geese then begin to go fast to the southward, and continue to do so until the beginning of October. This is called the autumnal goose-season, in which every person, both native and European, that can be spared, is employed ; but they seldom kill more geese at this time than they can consume fresh.

By the middle of October the ground is generally covered with snow. The partridges then begin to be very plentiful ; and as soon as that happens, the hunters repair to such places as they think most probable to meet with plenty of game in. The English generally go out in parties of three or four, taking with them their guns, a kettle, a few blankets, a buffalo, or beaver skin coverlid, and a covering for their tent ; which is made of deers skins, dressed by the natives, and sewed together, so as to make it of a proper form and size. In pitching their tents, they have an eye

likewise to their own convenience with respect to shelter from the winds, and getting of fire-wood; which, it will easily be imagined, makes a considerable article here in the necessaries of life: I mean at this season of the year.

Much about this time, likewise, we who stayed at the factory began to put on our winter rigging; the principle part of which was our toggy, made of beaver skins: in making of which, the person's shape, who is to wear it, is no farther consulted, than that it may be wide enough, and so long that it may reach nearly to his feet. A pair of mittens and a cap, of the same, are all the extraordinary dress that are worn by those who stay at the factory, unless we add a pair of spatter-dashes, made of broad cloth, which we wear over our common stockings, and two or three pair of woollen socks, which we have on our feet. Those who go out add to the fur part of their dress a beaver skin cap, which comes down, so as to cover their neck and shoulders, and also a neckcloth, or cravat made of a white fox's skin, or, which is much more complete, the tails of two of these animals sewed together at the stumps-ends, which are full as long and thick as those of the Lincolnshire weathers before they are shorn. Beside these, they have shoes of soft-tanned moose skin, and a pair of snow-shoes about 4 feet, or $4\frac{1}{2}$ feet long. Most of these articles of dress I was furnished with by the honourable Hudson's Bay company; but my chest was broken open, after the ship came up the river, and every article, except the snow shoes, taken away by the officers of the customs. And though there was not one thing which

was not an article of dress; and though a petition was preferred to the Commissioners, in favour of Mr. Dymond and myself, yet, for some reason or other, they could not be restored.

But, to return to Hudson's Bay. November the 6th, the river, which is very rapid, and about a mile over at its mouth, was frozen fast over from side to side, so that the people walked across it to their tents: also the same morning, a half pint glass of British brandy was frozen solid in the observatory. Not a bird of any kind was now to be seen at the factory, except now and then a solitary crow, or a very small bird about the size of a wren; but our hunters brought us home every week plenty of partridges and rabbits, and some hares; all of which are white in the winter season; and the legs and claws of the partridges are covered with feathers, in the same manner as the other parts of their bodies. We now killed two or three hogs which captain Richards had been so kind to leave with the governor, which before they were well opened, and cut into joints, were froze like a piece of ice, so that we had nothing to do but hang them up in a place where they would remain in that state, and use them when we thought proper. We used some of these, I believe, in the month of May, which were as sweet as they were the moment they were killed, and much more tender and delicate. One thing however must be observed, that if you roast them on a spit, or cut them in any manner whilst roasting, all the gravy will run out immediately.

In the fore end of December, I went to one of the hunters tents, where I stayed near a week. When

I was there, I was told by one of the people, that they had a spring very near them, which was not yet frozen over, notwithstanding the sea was frozen up as far as we could see, and the ice in the river was 4 or 5 feet thick. I went to see it ; but that morning the frost had been so very intense, that it was frozen over about an inch thick ; when we broke the ice, the water was so shallow, that we raised all the mud from the bottom ; and yet other springs, that were at least six times its depth, had been frozen quite dry several weeks.

In the month of January, 1769, the cold began to be extremely intense : even in our little cabbin, which was scarcely three yards square, and in which we constantly kept a very large fire ; it had such an effect, that the little alarm clock would not go without an additional weight, and often not with that. The head of my bed-place, for want of knowing better, went against one of the outside walls of the house ; and notwithstanding they were of stone, near three feet thick, and lined with inch boards, supported at least three inches from the walls, my bedding was frozen to the boards every morning ; and before the end of February, these boards were covered with ice almost half as thick as themselves. Towards the latter end of January, when the cold was so very intense, I carried a half-pint of brandy, perfectly fluid, into the open air, and in less than two minutes it was as thick as treacle ; in about five, it had a very strong ice on the top ; and I verily believe that in an hour's time it would have been nearly solid. About the beginning of December we began to use spirits of wine for the plumb-line of the quadrant, which

which would have been evaporated to about half the quantity in a fortnight's time, the spirituous part shooting up the plumb-line, and sides of the glass like coral; but perfectly white. What remained would then freeze, but not before. At the beginning of the winter I hung a small vial with about a tea-spoonful of proof spirits of wine by the thermometer, on the outside of the observatory, and when I had well corked it up, dropped some water on the cork, which was instantly frozen to ice, and thereby sealed the vial, in a manner hermetically. This, though it hung all the winter, never froze; nor, that I could perceive, altered its fluidity in the least.

It was now almost impossible to sleep an hour together, more especially on very cold nights, without being awakened by the cracking of the beams in the house, which were rent by the prodigious expansive power of the frost. It was very easy to mistake them for the guns on the top of the house, which are three pounders. But those are nothing to what we frequently hear from the rocks up the country, and along the coast; these often bursting with a report equal to that of many heavy artillery fired together, and the splinters are thrown to an amazing distance.

On Sunday, March 19th, it thawed in the sun, for the first time, and on the 26th it thawed in reality. The yard of the factory was that day almost covered with water. After this, it continued to thaw every day about noon when the sun was out; and by the 23d of April, the ground was in many places bare. On the 26th it rained very fast, almost the whole night, which was the first rain we had after October the 3d, 1768. It was really surprizing next morning

ing to see what an alteration it had made in the appearance of the country. We had now alternately snow and rain, frosts and thaws, as in England ; the grass began to spring up very fast in the bare places, and the gooseberry bushes to put out buds : in short, we began to have some appearance of spring.

The latter end of April, the hunters began to come home from the partridge tents, in order to prepare for the spring goose season, which is always expected to begin about that time ; and is, in truth, the harvest to this part of the world. They not only kill, so as to keep the whole factory in fresh geese for near a month, but to salt as many as afterwards make no inconsiderable part of the year's provision. There are various sorts of the geese, as the grey-goose, the way-way, the brant, the dunter, and several more, which I cannot now recollect. The gander of the dunter kind is, in my opinion, one of the most beautiful feathered birds that I have ever seen, their colours being more bright and vivid than those of the parrot, and far more various.

Toward the latter end of May, the country began to be really agreeable ; the weather being neither too hot, nor so cold, but that one might walk anywhere without being troubled with any disagreeable sensation ; and the dandelion, having grown pretty luxuriant, made most excellent fallad to our roast geese.

On June 16th, the ice of the river broke up, and went to sea ; we now set our nets, and caught great plenty of fine salmon ; I have known upwards of 90 catched in one tide. We had beside, fishermen up the river, who brought us down plenty of pyke, mathoy,

mathoy, and tittymeg ; these two last being fish peculiar to this country, and both very good. But, in enumerating the fish, I must not omit the kepling, which comes about the middle of July. This fish is nearly of the size of a smelt, and has exactly the same smell ; but its back is much darker, and it is not quite so thick as a smelt in proportion to its length, more especially toward the head : according to my opinion, it exceeds, in point of delicacy, every other fish whatever, and is in such plenty, that they are thrown up, and left on the shore by the surf of the sea ; but then it must be owned that this rarity can never be had above a fortnight in a year, and sometimes not so long. This fish is well known on the banks of Newfoundland.

About the beginning of July we likewise got plenty of very fine radishes ; and the tops of our turnips began to grow large enough to boil for greens to our beef and salt geese. Moreover, towards the middle, we had very fine lettuce, so that if the muschettos had not paid us a visit about the beginning of the month likewise, the two or three last months would have been extremely agreeable ; but, taking altogether, I cannot help thinking that the winter is the more agreeable part of the year.

I shall here add such remarks as I have been able to make, relative to the natural history of the country ; its inhabitants, soil, air, produce, &c. And first with respect to the inhabitants : They are of a middle size, but rather tall than otherwise ; very spare and thin : I never saw one, either man or woman, inclined to be fleshy ; of a copper colour, wide mouths, thick lipped, and have long, straight, black hair ; of which they

they are immoderately fond, and would not have it cut, except on the death of a friend, for any thing that you can give them : their eyes are black, and the most beautiful that I ever saw. The rest of their features vary as those of Europeans do. Their disposition seems to be of the melancholic kind ; good-natured, friendly, and hospitable to one another, and to the Europeans ; and I believe the most honest creatures that are any were to be met with. They do not readily forget an injury ; but will never revenge it when they are sober. They have no laws whereby to regulate their conduct, except that of reason ; which, in their sober moments, they are seldom known to transgres. They converse extremely well on subjects which they understand, and are remarkably clever in repartees ; but seem to have very little genius for arts or science. They lead an erratic life, living in tents, as all people must do, whose subsistence depends entirely on hunting.

They are not without some notion of religion, but it is a very limited one. They acknowledge two Beings ; one the author of all good, the other of all evil. The former they call Ukkemah, which appellation they give also to their chiefs ; and the latter they call Wittikah. They pay some sort of adoration to both, though it is difficult to say what. Their opinion of the origin of mankind is, that Ukkemah made the first men and women out of the earth, three in number of each ; that those, whom we Europeans sprang from, were made from a whiter earth than what their progenitors were, and that there was one pair of still blacker earth than they. They have likewise

likewise an imperfect traditional account of the deluge ; only they substitute a beaver for the dove.

With respect to the soil and its produce of the vegetable kind, I can add very little to what I said on my first coming on shore. As to corn, I am well convinced, that about Churchill it will produce none, except oats : those, from a trial which I have seen, I believe might be brought to some tolerable degree of perfection in time, and with proper culture. Its internal contents are, I believe, chiefly rocks ; there are, however, many of them marble, and some very fine. I have also specimens of copper, copper ore, mundic, spars, talk (different from the Muscovite), and several pyrites ; for the greater part of which, I am indebted to Mr. Jacobs, chief, and Mr. Hutchins, surgeon at York Fort ; from whom I received many favours.

The air in this country is very seldom, if ever, clear for twenty-four hours together ; but we were not so much troubled with fogs as I expected we should be, from the accounts which I had read of the country, and from what we experienced in our voyage out : but in this point, as well as every other which respects the weather, the journal which we kept will, I presume, be most satisfactory.

I have before mentioned the haze which is continually found near the horizon here. This, I apprehend, is the cause why the sun's rising is always preceded by two long streams of red light, one on each side of him, and about 20° distant therefrom. These rise as the sun rises ; and as they grow longer, begin to be inflected towards each other, till they meet directly over the sun, just as he rises, forming there a kind of parhelion, or mock-sun. These two

streams of light seem to have their source in two other parhelia, which rise with the true sun; and in the winter season, when the sun never rises out of the above-mentioned haze, all three accompany him the whole day, and set with him, in the same manner that they rose. I have, once or twice, seen a fourth parhelion directly under the true sun; but this is not common.

The aurora-borealis, which has been represented as very extraordinary in those parts, bears, in my opinion, no comparison to what I have seen in the north parts of England. It is always of the same form here, and consists of a narrow, steady stream of a pale straw-coloured light, which rises out of the horizon, about E. S. E. and extends itself through the zenith, and vanishes near the horizon, about the W. N. W. It has very seldom any motion at all; and when it has, it is only a small tremulous one on the two borders.

I shall now resume my journal. Monday, August 28, we took down the instruments, packed them up, and put them on board the ship, expecting to have sailed the next day; but unforeseen accidents detained the captain until 5 September the 2d, when we took leave of the governor and officers of the factory, and came on board the ship. We were after this detained by contrary winds until the 7th; on which day, about 15^h we saw the comet, which was observed this year in England, in a right line between ζ Orionis and Procyon; and also in a right line with Aldebaran, and α Orionis; but below both. About 18^h we sailed out of the river with a fine breeze from the west; and at noon I observed, with great care, the sun's meridional altitude to

to be $36^{\circ} 2' \frac{1}{4}$; from whence the latit. of the ship is $59^{\circ} 12' \frac{1}{4}$ and that of the factory $58^{\circ} 55' \frac{1}{2}$.

The prodigious difference between the latitude of Churchill factory, as laid down from observations made by Hadley's quadrant, and that deduced from the observations made with our astronomical quadrant on shore, has often employed my most serious attention; but I cannot think on any probable cause for such difference, unless it lie in the very great refractive power of the air in these parts. I have mentioned how the ice and land appear to be lifted up, when we stand on the ship's deck: and if the visible horizon be lifted up in like manner, it must make its apparent distance from the sun, or, which is the same thing, the sun's apparent altitude less than it otherwise would be; and consequently, the latitude greater than the truth; and also greater than it will be shewn by a land quadrant, which depends not on the horizon, agreeable to what we find it in the case before us *.

* Having mentioned this circumstance to the reverend Mr. Maskelyne, it immediately occurred to him, that the longitude deduced from observations of the ☽'s distance from the sun or a star, would be considerably affected by this cause, as not only the altitudes of the ☽, from whence the time at the ship is found; but also the latitude of the ship, found by an observation of the sun's meridional altitude, or otherwise, will conspire to encrease the sun's distance from the meridian, or angle at the pole.

I have therefore recomputed the longitude from my observation of the moon's distance from the sun, taken August the 5th, 1768, on a supposition that the mean error in any altitude taken by Hadley's quadrant, arising from this cause, is 10 minutes; and find that, on such a supposition, which it must be allowed appear to be extremely well founded, the longitude will be $11' \frac{1}{4}$

§ September the 8th. About $14^{\text{h}} \frac{1}{2}$ I saw the comet again, in a right line with Saturn, and β Canis minoris; and also in a right line with Capella, and γ Geminorum. Its tail passed directly over ϵ Orionis and might be traced about as far beyond it, as that star was from the head of the comet,

○ September the 10th. At 16^{h} the comet was in a right line with Castor and Procyon; and about 5° or 6° below the latter. This was the last time I saw it.

§ September the 20th. Being in latit. $61^{\circ} 13' \frac{1}{2}$, and Cape Resolution E. b. S. I made the following observations for determining the longit. of the ship.

Dift. ♀ & ☽ near. limbs.	Alt. ☽'s lr. limb.	Alt. ♀'s l. limb.	N. B. $1 \frac{1}{2}$ must be subtracted from the sun's alt. for the error of the quadrant, and $3 \frac{1}{2}$ from both the ☽ and ♀'s altitudes for the dip of the horizon; and then the longit. of the ship will come out $66^{\circ} 10' W.$ By account, it is $65^{\circ} 30' \frac{1}{2}$.
$105^{\circ} 52' \frac{1}{2}$	$17^{\circ} 39'$	$35^{\circ} 42'$	
50	17 50	30	
49	17 58	28	
47	18 6	12	

Before I quit this part of the world, I cannot help observing, that I have had abundant reason, in my voyage home through Hudson's Straits, and the adjacent Seas, to rest satisfied with having ventured my opinion in respect to the quick motion, or swift dissolution, of the ice islands. For, since we left the Straits, we have not seen one; and though we were

less than what I found it at the time when I made the observation, and therefore the longitude of Churchill will in this case be only $94^{\circ} 50' \frac{3}{4}$ W. And by making a similar correction of $15'$ to Mr. Dymond's observation of the 6th, it will give the longitude of Churchill $95^{\circ} 18' W.$

be calmed,

be calmed, and much troubled with contrary winds, so that we lay beating from side to side about nine days in the Straits, yet we did not see twenty islands the whole time, and these none of them very large. Whereas, was captain Middleton's hypothesis true, and they were some hundred of years dissolving, and traveling into the latitude of 50° , they could not have got by this time quite out of Hudson's Straits, much more out of the Straits of Davis.

We were, by my account, abreast of Cape Farewell on the 26th; about which time we were taken with very rough, and contrary winds, with which we were troubled almost all the way till we got abreast of Ireland.

On October the 7th, P. M. being by account in long. $18^{\circ} 57'$ W. or by my last observation in long. $19^{\circ} 38'$, and lat. $52^{\circ} 10'$ N. I had the following observations for determining the longit. of the ship.

Dist. ☽ & ☇ nearest L's.	Mr. Wood ○'s L. L.	J. D. N's Cent.
86° 6'	17° 2	10° 39
8	16 40	10 57
8½	16 30	11 8
10	16 3	11 27
10	15 50	11 38

1' must be subtracted from the distances, 3' from the ☽'s alt.; but 9 from the sun's, for the errors of the quadrants; and 3' 34" from the ☇'s alt. and 3' 18" from the ☽'s for the dip of the horizon. The long. from these observations comes out = $18^{\circ} 59' \frac{1}{2}$ W.

On October the 9th. About 20^h we struck soundings in 87 fathom water: the bottom fine white sand. The 10th at 21^h made the Scilly light-house from the mast-head; and at noon it bore directly north, by true card; the ship being in long. $5^{\circ} 40'$ W. by my

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my account, in $5^{\circ} 42' \frac{1}{2}$ by my last observation, and in $6^{\circ} 21'$ by the former.

¶ October the 11th, latit. $49^{\circ} 45'$ N. I observed the following distances of the ☽'s nearest limb from α Aquilæ.

Time by the Watch.	Dist. ☽ à α Aquilæ.	Alt. ☽'s center.	
8 ^h 54 ³ ₄	40 55 ¹ ₂	33 46	Subtract 48'' from the distances for the error of the quadrant; and 3 ¹ ₂ from the ☽'s alt. for the dip of the horizon.
59	58	33 45	
9 1 ¹ ₂	59 ¹ ₂	33 38	The watch went, as truly as it could well be regulated, to mean time.
4 ¹ ₄ 41	0	34	

Time by the Watch.	Alt. ☽'s L. L.	
20 50	20 4 ¹ ₂	The error of the quadrant in these observations is — 48'', the dip of the
54	8	horizon 3' 34'', and the lat. of the
54 ³ ₄	12	ship $49^{\circ} 33'$, 3: and the watch will
56	26 ¹ ₂	be found too slow for apparent time
56 ¹ ₄	28 ³ ₄	by 2' 56''. The long. of the ship when I took the altitudes for determining the time was by account $4^{\circ} 34'$,

by my first observation $5^{\circ} 15'$, and by the second $4^{\circ} 36 \frac{1}{2}$ W. and it will be found by this last $4^{\circ} 55'$ W.

At noon the Lizard light-houses bore N. E. by N. dist. by estimation about eight miles; and from hence I infer that its longitude west from Greenwich is, by account, $4^{\circ} 27'$. By my first observation $5^{\circ} 8'$, by the second $4^{\circ} 29 \frac{1}{2}$, and by the last $4^{\circ} 48''$. The true longitude of this place as determined by Mr. Bradley's observations made there (vid. preface to the Nautical Almanack of 1771) is $5^{\circ} 15'$ W. and therefore the greatest error that I have committed in these observations is $45' \frac{1}{2}$, and the mean of the three differs no more than $26' \frac{1}{2}$ from the truth; but I apprehend

apprehend the greatest error will be thought of very little consequence in the practice of navigation.

I here closed my account of the ship's way; but the evening of the 12th proving very fine, and having an opportunity of observing the ♀'s distance from Aldebaran to the east, and from α Aquilæ to the west of her; I took the following ones, as they may be of use, if compared together, to shew what degree of accuracy these observations will admit of.

Time by the Watch,	♀'s farthest L. à Aldeb.	Alt. of ♀ L. L.	Time by the Watch,	♀'s nearest L. à α Aquil.	Alt. of ♀ L. L.
9 ^h 57'	80° 19'	39° 9'	10 ^h 13'	51° 57'	38° 55'
10 6 $\frac{1}{4}$	80 14 $\frac{1}{2}$	7	10 19 $\frac{3}{4}$	52 0 $\frac{1}{2}$	47
10 8 $\frac{1}{4}$	80 12	6	10 22 $\frac{1}{4}$	52 1	43

The latit. of the ship at this time was 49° 34' N. The error of the quadrant with which the distances were taken was—1', and the dip of the horizon 3 $\frac{1}{2}$. The observations of Aldebaran give the longitude of the ship 4° 10' W. and those of α Aquilæ 3° 43' $\frac{1}{2}$; but I would not be understood to mean that either of those is the long. of the ship, because I had no opportunity of finding the error of the watch.

On the 13th the captain, finding that he gained nothing by beating in the Channel, took a pilot on board for Plymouth; and on the 14th, about one o'clock, we came to an anchor in Hamoze. On the 16th, finding the easterly winds still likely to continue, Mr. Dymond and myself took places in the stage, and arrived in London on the 19th about 9 in the evening.

I flatter myself that no gentleman will think that I have laid the preceding remarks before this learned Society,

Society, under a presumption that they can, in any respect, merit their notice. There are many of them on subjects which I am but little acquainted with : these were made only for my own amusement, and are now submitted to the Royal Society, at their command, and under a thorough conviction that they will be read with those candid allowances, which, I am well convinced, they stand much in need of. At the same time, I sincerely declare, that it would give me the highest satisfaction if they should be found to contain one useful hint, or be conducive of pleasure to any person whatsoever.

I shall conclude the whole with the latitudes and longitudes of the following places, which are all that I had an opportunity of determining with any tolerable degree of accuracy : and these all depend, more or less, on the ship's run ; some of them for considerable distances. But they are done with care, and all the accuracy that I was capable of. Those that are marked thus (:) are less certain than the others.

Names of Places.	Latit. N.	Long. W.
Cape Resolution,	61° 29'	65° 16'
Button's Isles,		65 20:
Saddle-back Island,	62 7	68 13
Island of God's Mercies, or Upper Savage Island,	62 32½	70 48½
Cape Charles,	62 46½	74 15
Salisbury Island,	63 29	76 47:
Cape Walsingham,	62 39	77 48
Cape Diggs,	62 41	78 50
North End of Manfell Island,	62 38½	80 33
Cape Pembroke,	62 57:	82 0: